

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 February 2003 (27.02.2003)

PCT

(10) International Publication Number
WO 03/015703 A3

(51) International Patent Classification⁷: **A61K 31/55**,
C07D 487/04, G01N 33/48

(74) Agents: **BORDNER, Thomas, J.** et al.; Medlen & Carroll, LLP, 101 Howard Street, Suite 350, San Francisco, CA 94105 (US).

(21) International Application Number: PCT/US02/26171

(22) International Filing Date: 15 August 2002 (15.08.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/312,560 15 August 2001 (15.08.2001) US
60/313,689 20 August 2001 (20.08.2001) US
60/396,670 18 July 2002 (18.07.2002) US
10/217,878 13 August 2002 (13.08.2002) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **THE REGENTS OF THE UNIVERSITY OF MICHIGAN** [US/US]; 3003 State Street, 2071 Wolverine Tower, Ann Arbor, MI 48109-1280 (US).

Published:

— with international search report

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **GLICK, Gary, D.** [US/US]; 1663 Snowberry Ridge Road, Ann Arbor, MI 48103 (US). **OPIPARI, Anthony, W.** [US/US]; 4228 Sherwood Forest Court East, Ann Arbor, MI 48103-9472 (US).

(88) Date of publication of the international search report:
13 November 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 03/015703 A3

(54) Title: COMPOSITIONS AND METHODS RELATING TO NOVEL BENZODIAZEPINE COMPOUNDS AND TARGETS THEREOF

(57) Abstract: The present invention relates to novel chemical compounds, methods for their discovery, and their therapeutic use. In particular, the present invention provides benzodiazepine derivatives and methods of using benzodiazepine derivatives as therapeutic agents to treat a number of conditions associated with the faulty regulation of the processes of programmed cell death, autoimmunity, inflammation, and hyperproliferation, and the like.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/26171

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 31/55; C07D 487/04; G01N 33/48
US CL : 514/215; 540/578; 436/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/215; 540/578; 436/64

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WEST, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,277,844 B1 (SPECTOR et al.) 21 August 2001 (21.08.2001), see entire document	1-53
Y	JONES, G.B. The non-covalent interaction of pyrrolo[2, 1-c][1,4]benzodiazepine-5, 11-diones with DNA, Anti-Cancer Drug Design, 1990, Vol. 5, pages 249-264.	1-53

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

15 March 2003 (15.03.2003)

Date of mailing of the international search report

08 AUG 2003

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Valerie Ballhaus
Laura Schenker

Telephone No. (703) 308-0196